



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/711,146

08/27/2004

Anders RYDBERG

7589.196.PCUS00

5145

28694

7590

09/19/2006

NOVAK DRUCE & QUIGG, LLP
1300 EYE STREET NW
400 EAST TOWER
WASHINGTON, DC 20005

EXAMINER

NGUYEN, NINH H

ART UNIT

PAPER NUMBER

3745

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/711,146

Applicant(s)

RYDBERG ET AL.

Examiner

Ninh H. Nguyen

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-9, 15-17, 23-25, 30 and 31 is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-14, 18-22, 26-28, 32 and 33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/25/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

The Petition for Revival of an Application for Patent Abandoned Unintentionally under 37 CFR 1.137(b) filed 04 January 2006 has been granted. Accordingly, the Notice of Abandonment of 21 December 2005 is hereby withdrawn and the prosecution of the application is now re-opened. This Office Action is also in response to the Status Inquiry of 19 July 2006.

Response to Arguments

1. Applicant's arguments with respect to claims 1-6, 1-14, 18-22, and 26-28 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 33 is objected to because of the following informalities: on line 11 of the claim, "***" should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 10-14, 18- 22, 26-28, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pichl (4,498,874) in view of Burger (2,297,390).

Pichl discloses a propeller shaft arrangement (Figs. 16, 17) comprising a plurality of propeller shafts (Figs. 16, 17) each of plurality of propeller shafts having at least a portion thereof provided with a spline adapted to achieve a rotationally fixed connection with a corresponding spline located inside an adapter of a corresponding propeller (Fig. 17).

However, Pichl does not disclose the spline being oriented at an oblique angle with respect to a longitudinal axis of the propeller shaft as claimed.

Burger teaches a splined connection (Fig. 2) for transmitting torque and at the same time, transmitting stresses in axial direction of propeller driving shafts (page 1, left column, lines 5-9); the splined connection comprising a first shaft 2 having at least a portion thereof provided with a spline 4 adapted to achieve a rotationally fixed connection with a corresponding spline located inside a hub of a corresponding shaft 1; and the spline being oriented at an oblique angle α with respect to a longitudinal axis of the shaft (Fig. 2).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made, to make the propeller arrangement of Pichl with the splines on the hubs and the propeller shaft being oblique to the longitudinal axis of the shaft for the purpose of transmitting torque and at the same time, transmitting stresses in axial direction between the propeller hub and the shaft as taught by Burger

5. Regarding claims 2, 11, 12, 14, 19, 20, 27, Pichl in view of Snell discloses all the limitations except the oblique angle is not offset from parallel with the longitudinal axis of the propeller shaft by at least 8.5 degrees as claimed.

Art Unit: 3745

From the teaching of Burger, the inclination angle or the offset angle of the spline from the longitudinal axis enables the splined connection to transmit torque and to transmit stresses in the axial direction between the shafts. Therefore, the offset angle of the spline is considered a result effective variable.

Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to make the modified propeller shaft arrangement of Pichl with the oblique angle offset from parallel with the longitudinal axis of the propeller shaft by at least 8.5 degrees to ensure transmitting of the torque and axial stresses between the propeller hub and the shaft. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

6. Claims 7-9, 15-17, 23-25, 30, and 31 are allowed.

Prior Art

The prior art made of record but not relied upon is considered pertinent to applicant's disclosure and consists of 2 patents.

Neuner (6,604,885) and Crewdson (1,381,805) are cited to show couplings having helical splined connections.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Ninh Nguyen whose telephone number is (571) 272-4823. The examiner can be normally reached on Monday-Friday from 7:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look, can be reached at (571) 272-4820. The fax number for this group is (571) 273-8300.

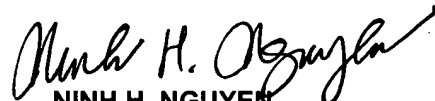
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Application/Control Number: 10/711,146

Page 6

Art Unit: 3745

system, please go to <http://pair-direct.uspto.gov> or contact the Electronic Business center (EBC) at 866-217-9197 (toll-free).


NINH H. NGUYEN
PRIMARY EXAMINER

Nhn

September 8, 2006